

Battery Charge System Troubleshooting – TSM 20210830

- No charger light or fan means no AC input power
 - If J1772 EVSE connection
 - check proximity/pilot connection to proper J1772 inlet pins
 - check J1772 inlet ground to 12v negative connection
 - Option: use charger case – make clean connection to 12v negative ground
 - Check EVCC +12v_IN connection to +12v always on, Ignition to keyswitch
 - Either J1772 or Direct AC connection
 - With EVCC Standard but no J1772 plug, connect proximity input to 12v negative
 - Check crimped connections in 3-wire AC inlet connector
 - Recommend crimping and soldering wire terminals
 - Pull on wires to ensure locked into connector
- Charger shows Red/Grn/Yel/Yel/Yel repeated light pattern
 - Check charger is a match for battery pack - see *charger output chart* below:
 - <https://www.thunderstruck-ev.com/tsm2500-charger-only.html>
 - Check all connections – verify correct polarity and wire terminals secure
 - Canbus Connection
 - Proper connector used? Check included connector picture sheet
 - Color match from EVCC to charger: Grn/Wht to Grn and Blu/Wht to Blue
 - Disconnect canbus connector and verify the side connecting to EVCC
 - pull and push wires to verify tight terminal crimp and terminal locked
 - verify red locking plate inserted into connector
 - DC output connection: 2-pin Anderson (gray)
 - Recommend crimp and solder battery side connection
 - Check inserted and locked in place
 - Look into end of connector: verify contact terminals are raised above plastic connector, to ensure contact with mating pins on charger
 - Verify AC inlet connection as listed above in “No charger light”
 - Enter “**enable canterm**” in EVCC user interface, particularly if no BMS on canbus
 - Power cycle the EVCC to clear charge state
 - If J1772, check EVSE power, check for tripped circuit breaker on the supply circuit
 - Check for EVSE error indications. Power cycle EVSE if error
- EVCC Fast Blink – Charge Error
 - Measure battery voltage
 - If equal to or above the EVCC **maxv** setting then charge will stop normally
 - Set **maxv** correctly: at or below max cell voltage multiply by # of cells in series
 - Check EVCC to Charger (and BMS) canbus wires connected securely, color matched
 - EVCC user interface (Putty/Coolterm) troubleshooting
 - Enter **show config** to verify all settings match your pack and BMS connection
 - Measure pack voltage, and if equal to or above the EVCC **maxv** setting then charge will stop normally
 - Set **maxv** correctly: at or below max cell voltage multiply by # of cells in series
 - Set **maxc** correctly: above **termc** and at or below the charger maximum current (see *charger output chart* above)

- Set **termc** at or above 1.5 Amps, approximately 2% of the amp hour rating of the pack
- Set **bms** as required (options: bmsc, loop, none)
- Enter **show** – look for status errors
 - BMS HVC, Cell Census, Timeout, not locked errors
 - BMS will show a red light if it is generating an error
 - In BMS user interface, enter **lock** to set expected cell count
 - Check all cell harnesses connected
 - Check BMS to EVCC canbus wires connected, color matched
 - BMS user interface: **show cells** to verify cells, check for HVC
 - Loop error
 - Check the EVCC BMS setting
 - **set bms bmsc** if connecting to TSM or Orion BMS
 - **set bms loop** if connecting to a charge enable output from BS or other device
 - For the bms loop setting – test the loop by connecting Loop1 to Loop2 EVCC inputs together temporarily and testing charge
- EVCC - enter **trace charger** to show charger canbus outputs
 - If no trace output then charger is either not powered up or canbus not connected properly
 - Note V, A values reported
 - If A=0-1 amp then either battery not connected to charger or battery voltage at or above **maxv** setting
 - If V=**maxv** then it is possible that the battery circuit is open or not connected, and the charger is at **maxc** because there is nothing to charge
 - Check all pack connections including terminals, interconnects and fuses for open, loose or poor contact
 - If trace shows A>1 Amp and the value is slowly decreasing, then charge is near the end, and battery is full
 - Enter **tr off** to stop a trace in the EVCC
- EVCC - enter **show history** to list all the recent charge attempts
 - First row is the latest entry
 - First column is the cause of charge stop
 - Normal means **maxv** was reached
 - Other entries list errors – rx or comm errors suggest charger not powered or not connected properly
- EVCC J1772 Auto-Start not triggering
 - Check proximity connection, pilot connection, J1772 inlet ground path (see above)
 - Test proximity circuit by entering **me prox** – this reports proximity voltage for 3 states: J1772 plugged in, release button depressed, plug removed
 - If **me prox** results do not match the **me** help results in the user interface, contact TSM

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